



Comments of NRDC and Sierra Club
on the RETI Phase 1A draft report by Black and Veatch

March 18, 2008

NRDC and Sierra Club, the two environmental NGOs on the RETI Steering Committee, appreciate the opportunity to comment on the Phase 1A Draft Report prepared by Black and Veatch for RETI. Overall, we are very disappointed at its treatment of environmental concerns – especially because the conversation that we had with Black and Veatch representatives and CEERT after the Feb 27th Stakeholder Webcast was so positive and led us to believe that our conviction that the success of RETI depends in large part on having environmental concerns be given equal consideration with economic (and other) issues was not just understood by the Black and Veatch team, but shared by its members. This is, after all, the implicit goal of the RETI process, the explicit goal of which is to “identify those (*renewable energy*) zones that can be developed in the most cost effective and environmentally benign manner,” In fact, however, environmental considerations are barely touched on in this report which, in contrast, deals extensively with economic issues. Thus the report conveys the implication that environmental concerns are secondary to economic factors and will receive only token consideration in the RETI process. The next version of the report must clearly and effectively rebut that implication and convey instead a commitment to ensuring that environmental considerations play an integral role in the process going forward.

In addition to our substantive concerns, which are detailed below, we must express our concern about the short time period that was allowed for review and comment on the current draft. This time period further enhances the impression that environmental considerations will be given short shrift, by effectively denying us and the individuals and organizations we are expected and striving to represent sufficient time to prepare thorough and comprehensive comments on the draft’s comments. The environmental stakeholders and colleagues who we represent must have real opportunities to make themselves heard, as well as real evidence that their concerns are – and will be – incorporated into the RETI process. The draft report fails to do this. Although the report acknowledges the need to include more detailed environmental information in the RETI process, it makes no attempt to show in the text or in the figures where and how that information would be included. Nor does the report even mention environmental criteria in the “Draft phase 1B scope of work”. We request that the draft be modified to reflect our concerns and the comments of our colleagues in order to present an accurate portrayal of the importance of environmental considerations to the RETI process and how those considerations will be incorporated in the future.

It appears to us that there are two main opportunities for environmental concerns to be utilized in this process. These opportunities should be more clearly explained and, where possible, detailed in the next version of the phase 1a report.

1. Resource screening level: NRDC submitted a list to representatives of CEERT and the CPUC of lands that needed protection from development for renewable generation and transmission lines, including lands that are currently protected by federal law or policy, at the second RETI meeting. Unfortunately, that list was not considered in the phase 1a report. Instead, the NREL screen was used. We are pleased that a more sensitive screen than NREL's will be developed by the Environmental Working Group for use in evaluating resource potential as well as for siting purposes. Such a screen needs to be used so that resource estimates for an entire area or a particular CREZ incorporate environmental considerations and accordingly are not inflated. For example, no one should project that 1000MW of solar thermal is available in a particular CREZ unless we know that environmental sensitivity will not reduce that amount to 500MW. As it now stands, because the projections included in the draft report were derived using only the NREL screen, it is likely that they are overoptimistic and will need to be adjusted downward once the "RETI screen" is developed and employed. The next version of this report will need to acknowledge this fact.

As you know, the "RETI screen" will be developed through weekly calls or meetings of the Environmental Working Group, and our plan is to deliver it by May 1. NRDC and Sierra Club have been told by both Black and Veatch and CEERT that this timeframe will allow for its inclusion in the phase 1b work.

2. CREZ ranking: The Environmental Working Group will develop environmental criteria to inform the CREZ ranking process. It is our goal to have these criteria developed during the month of May. Further, the Environmental Working Group will develop recommendations for the Stakeholder Steering Committee regarding the method(s) by which CREZs will be ranked such that all relevant factors – economics, environmental considerations, timeframe of development, and development certainty – can be fairly and transparently compared.

In what follows we present our specific comments and concerns by section of the draft report.

Executive Summary:

- Although environmental criteria are mentioned in the ranking of CREZs, they are not mentioned at the resource screening level. The next version of the report should make clear what screen was used for this phase, describe how a more comprehensive screen will be developed and used to determine the resource potential of CREZs and, as stated above, acknowledge that the existing information will have to be adjusted as a result.
- Figures 1-2 and 3-1 do not include environmental criteria in the mix. There should be 2 boxes showing the major points where environmental considerations will be applied: one to resource screening, and one to CREZ ranking.

Methodology (Section 3)

- Add environmental criteria to resource screening, similar to the executive summary (page 3-16).
- There is a good description of the Environmental Working Group role for phase 1B, section 3.5.1, page 3-20.
- The report fails to mention environmental criteria in the CREZ ranking process on page (3-44), The description “as described earlier in this section” is not detailed enough. Please be more explicit about the plans to incorporate environmental concerns fully into the RETI process, including in particular inputs from the Environmental Working Group.

Resource Valuation (section 3.7)

- NRDC and Sierra Club understand that the CPUC would like to have detailed cost numbers for different projects within CREZs in order to compare projects to one another, and to compare CREZs. It is our understanding at this time that the plan in phase 1B is for Black and Veatch to “pick” a number for the cost of development of a generation project. However, we cannot know the full economic cost of any project without understanding the environmental impacts and concerns that will affect that cost. In addition, we share the concerns of generators that picking “reasonable” numbers for particular technologies in specific locations may well be a futile exercise. We therefore recommend that in phase 1B, Black and Veatch include a reasonable range for the cost estimate of a project, based on known uncertainties in the cost of development and the associated environmental costs.

Technology Assumptions

- 5.1.1: Biomass Environmental Impacts. NRDC and Sierra Club are wary of any biomass projects that claim to use “forest thinnings” to reduce fire risks. We have seen in the past that too many of these projects are a smokescreen for inappropriate and/or unsustainable logging. We strongly urge that you eliminate the “forest thinning” category from the potential projects for the purpose of RETI. Alternatively, we urge that RETI adopt the definition of biomass that is included in the 2007 Energy Bill (the Energy Independence and Security Act of 2007), which includes crucial safeguards necessary to achieve climate benefits while protecting the environment.
- 5.4.5: We endorse the recommendation of Bill Powers, Powers Engineering, that the report justify the assumption that only dry-cooling solar plants will be used in the California Deserts, and more fully explore the associated assumptions about energy output from dry-cooled plants.
- 5.4.5: Environmental Impacts of solar thermal. Please collect data for water usage for both wet-cooled and dry-cooled solar thermal plants. According to the Carrizo Plains AFC and Ivanpah AFC, the range seems to be from 12 acre-ft/year to 20 acre-ft/year per 100MW dry-cooled plant. These data will be necessary to evaluate cumulative environmental impacts of a CREZ and, we hope, will influence the environmental ranking of CREZs under the criteria to be developed by the environmental working group.
- 5.5.5: Environmental Impacts of Solar PV. Please quantify the amount of water required for washing PV so it can be compared to other technologies and

incorporated in descriptions and assessments of the environmental impacts of CREZs. Please include a range of acreage requirements for different technologies. As we know, although c-Si has been the primary technology so far in large US installations, there are significant proposed a-Si, Cd-Te, and CIGS projects. We would like to know if there is a significant difference between land requirements for different technologies.

- 5.6.3: Environmental Impacts for small-scale hydro. Please expand this section to more fully address the impacts of small hydro. In particular, please differentiate the impacts of new dam construction from the retrofitting of existing dams for hydro power.
- 5.7.2: Environmental Impacts for Wind. Please quantify the land requirements of wind projects (both total acreage of a project site, and footprint of the disturbed land including roads and laydown). Please quantify the impacts to bat and bird populations; this can be a range similar to the economic cost ranges.
- 5.8.4: Environmental Impacts for Geothermal. Please quantify the land requirements of geothermal projects. This should include both the construction laydown and final plant and new roads. Please quantify the amount of air pollution (including H₂S, CO₂, hydrocarbon releases from working fluid, and possible drift from cooling towers) per MW or GWh. Even though it is a fraction of fossil generation, it is still more than some other renewable technologies, such as wind. Please also identify which geothermal resource areas will produce hazardous materials in their filter cakes.

Resource Screening (section 6)

- 6.1.1: NREL's filter for biomass potential essentially just eliminates clear-cutting from the mix. We cannot agree with or accept the assumption that all "forest thinning" projects (mentioned on pg 5-5) are beneficial. For example, a recent proposal to thin the groves of Giant Sequoias in Forest Service land in Southern California would have removed many of the largest trees from the forest. Environmental groups including the Sierra Club successfully halted this proposal, and have petitioned to include the groves in a National Monument. As indicated above, great care must be given when making assumptions about the degree to which biomass is an available resource for RPS.
- 6.1.2: The California Biomass Collaborative (CBC) which did the assessment for statewide generation potential is an industry group. Their estimate was 200-300% higher than NREL. Thus, this group has an economic incentive to estimate higher and we question the use of this study, even though they used more local data than the NREL study. At the very least, the CBC numbers should be averaged with the NREL numbers to determine resource potential within a CREZ. This particular problem highlights the need for the next version of this report to acknowledge that its energy projections are preliminary and will need to be adjusted in subsequent phases of this effort.
- 6.4.2: Solar Thermal Potential. NREL has admitted that their screen to estimate solar potential is only a first pass or coarse filter, and does not include all protected lands. There are many land issues other than those identified that will likely limit the development of solar thermal to less than the estimated 440 GW of potential identified in CA. We expect that a finer filter of appropriate exclusion areas will be developed by the Environmental Working Group so that we do not

overestimate the contribution of this important technology or include in CREZs environmentally sensitive lands.

- 6.6 Hydropower: NRDC and Sierra Club strongly urge RETI to remove new hydropower from further analysis and consideration. New small-scale hydropower projects are highly controversial in California and the western US. RETI is considering technologies and projects that are likely to be constructed given adequate transmission and we do not believe that small hydro fits in this category. The resource is highly scattered, not likely to coincide with other renewable resources, and too small in scale to warrant its own transmission.
- 6.7 Wind: the standard NREL exclusions for wind are more comprehensive than the NREL exclusions for solar, and we believe provide a more realistic baseline for developable potential for wind. However, the next version of this report should acknowledge that the Environmental Working Group will be developing a more detailed and comprehensive exclusion list for use in future analyses.
- 6.8 Geothermal: There is no mention of a “fatal flaw” test for the geothermal resources. We assume, but are not told, that the technical potential could be developed. The next version of this report should confirm that potential projects will be screened to determine whether they are located on sensitive lands using the filter developed by the Environmental Working Group.

Summary (section 6.11)

- NRDC and Sierra Club strongly urge RETI to remove small hydro from further consideration in the development of CREZs. Again, this is due to the highly controversial nature of hydro projects in the west, and small and disbursed nature of the resource. We also strongly urge that stringent limitations be placed on the use of forest biomass for the purposes of RETI.

Appendix A: Phase 1B scope of work:

- Under Task 4 (Appendix A, page 5), the draft report only describes the economic metrics by which CREZs will be ranked. The next version of the report should specifically state that an environmental ranking will be developed and used with the economic ranking to create an overall ranking of the CREZs. It should also state that we do not currently know the details of the ranking process, and that the Environmental Working Group, along with the Stakeholder Steering Committee, have the responsibility to develop those details.
- Under Task 1: NRDC and Sierra Club would like to see enhanced requirements for transmission projects to be included in the base case as for generation projects. More specifically, we believe something more than CAISO approval of a project should be required such as approval of a CPCN by the CPUC (if necessary) or possession of most permits. We are concerned that some highly controversial transmission projects might not be completed as planned, and that, as a result, RETI might underestimate what is needed in the forward-planning process.
- Under Task 2: Resource Valuation. NRDC and Sierra Club believe that one cannot accurately compare environmental impacts and costs of projects from different sites without a much more detailed environmental study of each project than Black and Veatch will be conducting. Without detailed site-specific study, it is difficult to state with any degree of certainty that one project is environmentally superior to another. Likewise, using specific numbers that are really assumptions

in the economic analysis may produce erroneous results about “least-cost” resources.* We therefore recommend using a “band” approach, whereby accurate error estimates, based on real uncertainties, can be included in the valuation of each project. While this may have the result of producing a number of projects within a CREZ within the same “band,” the result should more accurately reflect the real uncertainties involved in estimating the economic and environmental costs of particular projects.

* In fact we contend that the use of this phrase throughout this report is misleading as the data it refers to involve purely direct economic costs. We strongly urge that, for RETI’s purposes, a different term be used to refer to these costs at this time. At the end of the RETI process, we hope that the result will be a true “least cost” product, one that incorporates both environmental costs and economic costs.